Labor and Industries

Washington State Department of Labor and Industries' summary of pesticide-related activity for 2004.

Background

Four divisions in the Department of Labor and Industries (L&I) are involved in pesticide-related activities: L&I Washington Industrial Safety and Health Act (WISHA) Services, L&I Specialty Compliance Services, L&I Field Services, and L&I Industrial Insurance Services.

- WISHA has a mandate to ensure workplace safety and health. WISHA Services create workplace safety and health regulations, provide stakeholder training and outreach, hold the Annual Governor's Safety Conference and Agricultural Safety Day, handle appeals of safety and health inspections, and generate the L&I section of the PIRT report.
- Employers can request no cost safety consultations from L&I Field Services. These consultations are confidential and will not be discussed in this report.
- The L&I Specialty Compliance program issues farm labor contractor licenses, enforces agricultural wages, breaks, rest periods, recordkeeping requirements, and prohibited jobs for teens.
- L&I Insurance Services may provide Risk Management and Loss Control assessments. The Safety & Health Assessment & Research for Prevention group may investigate pesticide-related issues. The Claims Program administers wage replacement and medical benefits through worker compensation to Washington workers who become ill or injured on the job.

The pesticide-related activities of WISHA Services and Industrial Insurance Services are included in this PIRT report.

Cholinesterase Monitoring

The Department of Labor and Industries adopted Chapter 296-307-148 WAC, Cholinesterase Monitoring, in December 2003. The cholinesterase monitoring rule became effective February 1, 2004. This rule requires agricultural employers to document hours employees spend handling toxicity category I or II organophosphate or N-methyl carbamate cholinesterase-inhibiting pesticides. Over-exposure to these pesticides results in depression in cholinesterase activity. Employers are required to offer employees the opportunity to participate in the cholinesterase monitoring program if their number of handling hours of target pesticides is expected to exceed the threshold as defined by the rule. Workers receive baseline testing prior to use of covered pesticides and then blood cholinesterase levels are tested periodically during the application season.

Monitoring cholinesterase activity in the blood can detect cholinesterase depression prior to the onset of illness.

The changes for the 2005 season included:

- The health care provider sent the Cholinesterase Monitoring Handling Hours report to the Public Health Lab with the test requisition.
- The health care provider obtained written authorization from participating handlers to share test results with the employer.
- L&I Policy and Technical Services verified that physicians notified the employer of the worker with a cholinesterase depression to the exposure removal level and coordinated a schedule for follow-up monitoring of these handlers.
- Use of a 30-hour exposure threshold prompting employers to refer handlers for medical evaluation and testing.
- Dedication of a single research investigator from L&I to conduct worksite visits for cholinesterase depressions meeting criteria for a work practice evaluation or exposure removal.

To encourage participation in cholinesterase monitoring, L&I held numerous outreach and training workshops on the rule for the grower and medical provider communities throughout the state.

Cholinesterase Monitoring Results for 2005

Based on the *Scientific Advisory Committee for Cholinesterase Monitoring, January 17, 2006, Final Report, Cholinesterase Monitoring of Pesticide Handlers in Agriculture: 2005*, 2263 workers participated in the cholinesterase monitoring program during 2005. A baseline test was performed for each enrolled worker. A total of 611 workers who had reached the pesticide-handling hour threshold for 30 hours in 30 consecutive days had subsequent periodic testing. Workplace evaluations were triggered for a total of 59 workers. The alerts indicated cholinesterase depression of more than 20% from baselines. Ten of these alerts were issued to workers with cholinesterase depressions requiring removal from further exposures to pesticides (depressions greater than 30% for RBC and 40% for serum). The data suggests that 9.6% of the 611 workers who had periodic testing had cholinesterase depression at the time of periodic testing during 2005.

Health care providers sent the pesticide handling-hours reports to the DOH Public Health Laboratory with each periodic test request. The laboratory forwarded the handling reports to L&I. Pesticide handling reports were submitted for 565 (92%) of the 611 pesticide handlers during the 2005 season. This is a substantial improvement from 2004 when approximately 70% of handling reports were submitted. No significant relationship was found for handling hours and RBC (red blood cell) cholinesterase. A small but significant relationship was found for serum (plasma) cholinesterase. On average, a 0.053% serum cholinesterase depression could be expected for every hour spent handling

category I or II organophosphate or N-methyl carbamate pesticides. This equates to an approximate 1.5% serum cholinesterase depression for every 30 hours spent handling in the 30 days prior to testing; a very small decrease.

If L&I finds that a worker experienced symptoms that could be associated with the cholinesterase depression, the case is referred to DOH for investigation. L&I referred 2 cases to DOH during 2005. After investigation DOH determined that neither of the illnesses was associated with organophosphate or N-methyl carbamate exposure.

During 2004, L&I conducted *confidential consultations* with employers at more than 40 locations to evaluate workplaces where employees had cholinesterase depressions compared to their baseline tests. Because of the confidential nature of these consultations, they are not included in this report. L&I also conducted *research investigations* with employers to evaluate workplaces where employees had cholinesterase depressions compared to their baseline tests.

The preliminary results of cholinesterase monitoring for 2005 were compared to the results from 2004. The number of participants in 2005 was down somewhat from 2004 but the rate for persons getting follow-up testing was up 30 percent. Improvements in the cholinesterase monitoring program in 2005 included 1) lab baselines were done faster going down from 24 days to 1 or 2 days, 2) L&I notifications of depressions went from 7 days to 3 days, and 3) the amount of time between the notice of depression and initiation of an investigation went from 35 days to 9 days.

More information on the cholinesterase monitoring rule is available at the L&I cholinesterase monitoring Web site http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/default.asp.

The Science Advisory Committee's initial analysis and recommendations based on 2004 data is available online at http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/files/final.pdf.

The L&I Reports to the legislature are available online. The report on the first year of cholinesterase monitoring can be found at http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/files/ChELegRpt2004Final.pdf.

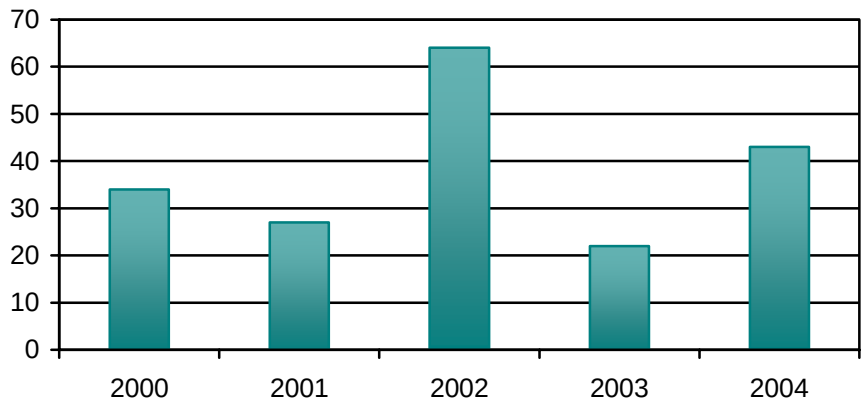
WISHA Services Division

To enforce safety and health in the workplace, L&I WISHA staff members may issue citations requiring employers to implement changes in the workplace. WISHA citations can be categorized as "serious" or "general". A serious violation presents a "substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations or processes which have been adopted or are in use, in the workplace...". A general violation is a situation where the "most serious injury, illness or disease that would be likely to result from a hazardous condition cannot be reasonably predicted to cause death or serious physical harm to exposed

employees, but does have a direct and immediate relationship to their safety and health". Both categories of citations require employers to implement changes in the workplace. Serious violations have penalties assigned and follow-up inspections may be performed to assure compliance.

This section summarizes the results of pesticide-related safety and health inspections conducted by L&I WISHA. A description of each of the inspections is provided in Appendix C. The number of pesticide-related inspections increased in 2004 (Figure 14). Of the 43 inspections, 34 (79%) were located in eastern Washington and 9 were located in western Washington.

Figure 14. WISHA Workplace Safety and Health Inspections, 2000 - 2004



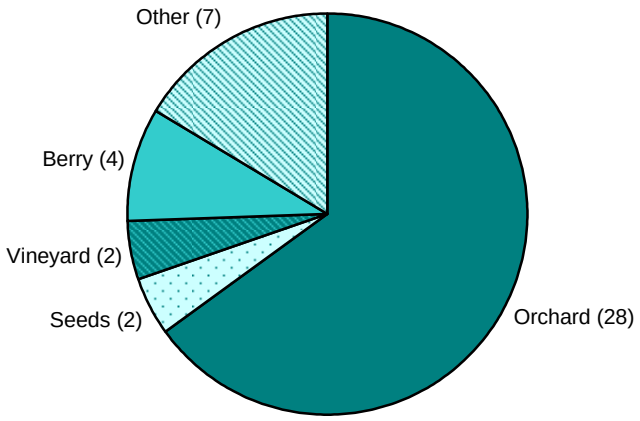
WISHA Inspections

Part of the increase in the number of WISHA pesticide-related inspections in 2004 was due to the L&I program targeting workplaces covered by the cholinesterase rule. L&I reviewed the hourly pesticide handling records and evaluated cholinesterase rule participation for 19 agricultural workplaces. This accounted for 44% of the 43 inspections in 2004.

Of the 43 pesticide-related WISHA inspections in 2004, 5 were the result of referrals from state agencies, health care providers and others. Six inspections were initiated in response to employee or employee representative complaints. Thirty were programmed inspections identified through the scheduling list and 2 were follow-up inspections.

All of the 2004 inspections occurred in agricultural environments. Figure 15 shows the inspections by type of work place. Twenty-eight (65%) of the inspections involved orchards. The "Other" workplace classification included one each of the following: cabbage farm, potato farm, onion processor, egg processing plant, livestock facility, dairy, and ornamental tree farm.

Figure 15. WISHA Inspections by Type of Workplace, 2004



WISHA Inspections Involving Violations

WISHA issues general and serious violations involving pesticides. L&I issued citations to the employer in 18 inspections. Several inspections resulted in both serious and general citations. Monetary penalties totaling $6,090 were assessed for 17 serious citations from 8 inspections. General citations with no penalties were issued in 16 of the 43 inspections. No citations were issued to the employer in 25 inspections.

The following is an example of a WISHA inspection involving violations:

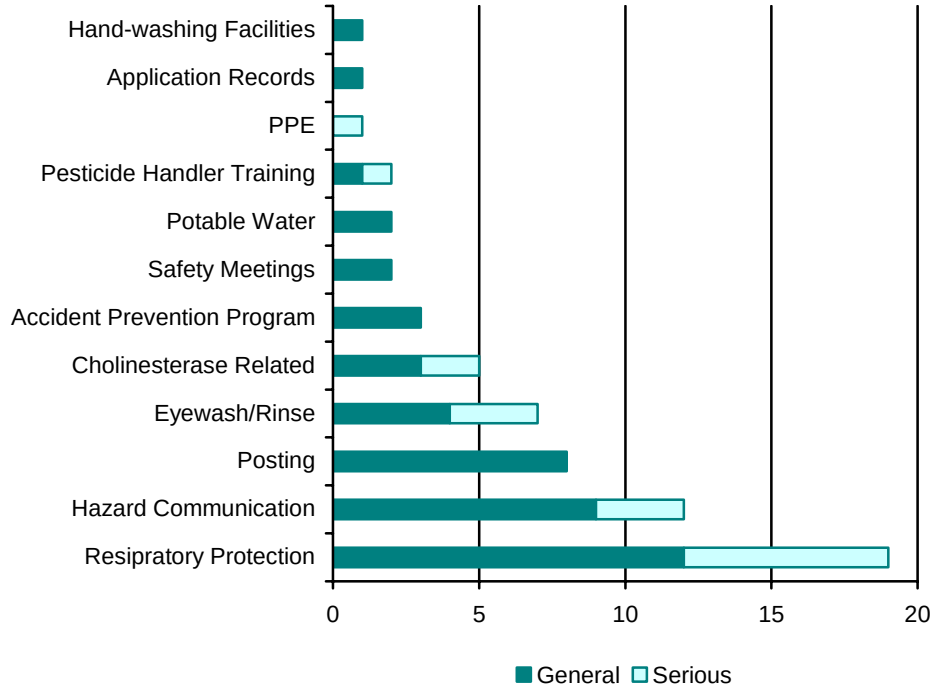
> *Employees were mixing, loading and applying pesticides including Lorsban 4E, Procure 50WS, Supreme oil c-c, or Guthion. After inspection, four general citations were issued to the employer for the following violations. The general citations did not involve monetary penalties.*
>
> *1) No eyewash capable of delivering at least 1.5 liters (0.4 gals.) of water per minute for fifteen minutes was available at the pesticide mixing and loading or handler decontamination sites although the label requires protective eyewear because of the potential for eye injury.*
>
> *2) Ten applicators did not have a pint of water. If the pesticide labeling requires protective eyewear, as was the case with the pesticides used at the subject workplace, each handler shall have at least one pint of water immediately available on the vehicle or aircraft for emergency eye flushing.*
>
> *3) Applicators were not using respirator canisters. The label for Guthion requires that applicators use a respirator canister approved for pesticides or an organic vapor cartridge / canister with any N, R, P or HE prefilter. Vapor and gas removing respirators do not provide protection against particulate contaminants and require a filter change-out schedule.*
>
> *4) The employer did not display pesticide safety information and pesticides were applied within the last thirty days and handlers were on the establishment.*

The most frequent type of serious and general WISHA violations cited in 2004 were:

- Respirator deficiencies including no respirator program, improper storage or cleaning of respirators, no medical evaluations of worker's ability to wear a respirator, no respirator fit-testing.
- Hazard communication deficiencies in safety programs including employee training and chemical labeling.
- Plumbed eyewash for a pesticide-mixing site or emergency pint of water for eye flushing was not provided.
- Cholinesterase Rule related including no cholinesterase monitoring program, no pesticide handling hours recorded, no training.
- Employee training about pesticides and their hazards.
- Deficiencies in appropriate personal protective equipment.
- Accident Prevention Program deficiencies.
- Not posting safety, emergency or pesticide spray information as required.
- No required safety meetings.
- No pesticide application records.
- No hand-washing facilities.

General and serious violations involving pesticides are categorized by type of violation in Figure 16.

Figure 16. WISHA General and Serious Violations Involving Pesticides, 2004



L&I Claims Insurance Services Division, Claims Administration Program

The Insurances Services Division, Claims Administration Program processes workers' compensation claims initiated by on-the-job injuries and illnesses. In 2004, the Claims Administration Program received 101 claims where the injury or illness initially appeared to be related to pesticide exposure (Table 36). The number of pesticide-related claims decreased by 17% from 2003.

L&I accepts or rejects a claim based on whether a work-related injury or illness is diagnosed. Compensation is determined in accordance with the following definitions:

- Medical Only/Non-Compensable Claim: A worker experienced symptoms that he/she believes occurred from exposure on-the-job and seeks medical evaluation. The physician finds the symptoms related to the exposure and there is objective evidence of injury. Therefore, the claim is allowed and medical evaluation and any follow-up medical

care/treatment costs are paid. The employee misses less than three days of work. These lost workdays are not reimbursed to the employee.

- Time Loss/Compensable Claim: A worker has an allowable claim and misses more than three days of work immediately following an exposure on the job. The worker is paid a portion of salary while unable to work. All related medical costs are covered.
- Rejected Claims: Initial diagnostic and medical evaluation costs are covered but the claim is rejected because objective evidence is lacking to relate symptoms to the workplace exposure. Claims may be rejected because symptoms have resolved by the time treatment is obtained, there is no objective evidence of injury, the worker may not yet have symptoms of illness from the exposure, or exposure cannot be confirmed or documented. A rejected status can be appealed and is often reevaluated, but, once final, the worker can no longer reopen a claim based on original symptoms. Illness claims may be either opened or reopened up to two years after the onset of delayed symptoms. Costs of initial medical visits are usually paid.
- Pending: Additional information is being collected on the claim before a determination can be made.
- Kept on Salary: The employer elects to pay the claimant's salary instead of L&I paying time loss payments while the employee is recovering from an injury or illness.

Table 36. Status of L&I Claims Initially Related to Pesticides, 2000 - 2004

	2000	2001	2002	2003	2004
Medical Only Non-compensable	115	75	79	83	70
Time Loss/ Compensable	11	8	4	4	4
Rejected	52	45	26	45	26
Pending/Unknown	2	-	-	1	1
Kept on Salary	-	1	-	-	-
Total	***180***	***129***	***109***	***133***	***101***

Claims categorized as *Medical only* and *Time loss* are compensated as work-related injuries. Of the 101 claims in 2004, 74 (73.4%) were compensated by L&I as being work related injuries. L&I paid either time-loss or medical benefits for a total of $39,448.06. In 2004, there were slightly fewer claims than in each of the previous four years.

As noted in the Rejected Claims definition above, most rejected claims were compensated for initial diagnostic and medical evaluations costs even if evidence was lacking to relate the symptoms to the work place.

L&I Claims Reported to Department of Health

L&I refers claims involving pesticides to DOH to investigate whether the illness is pesticide-related. A claim that is initially reported as pesticide-related could be accepted by L&I as work-related then DOH could investigate and classify it as unrelated to pesticide exposure.

L&I referred 101 claims to DOH to investigate during 2004 (Table 37). L&I assessed 74 of the 101 claims as work-related. Of the 74 claims that L&I assessed as valid work related injuries, DOH classified 53 (72%) as definitely, probably, or possibly related to pesticides (DPP). Based on the DOH criteria, the other 21 were classified as either: insufficient evidence to assess the link with pesticides, suspicious, or unlikely to be related to pesticide exposure. Of the 26 claims that L&I rejected, DOH classified 15 as DPP.

Table 37 illustrates the difference in evaluation criteria and perspective between the two agencies.

Table 37. Comparison of L&I Claims and DOH Classification Status, 2004

L&I Claim Determination	DOH Classification						
	Definite	Probable	Possible	Insuf Inf	Suspicious	Unlikely	Total
Medical Only/ Non-compensable	16	15	18	10	5	6	70
Time Loss/ Compensable	2	2	--	--	--	--	4
Rejected	3	4	8	7	1	3	26
Pending/Unknown	--	--	--	1	--	--	1
Kept on Salary	--	--	--	--	--	--	0
Total	***21***	***21***	***26***	***18***	***6***	***9***	***101***

Seventy-three of the 101 claims L&I referred to DOH for evaluation were agricultural. DOH classified 44 of the 73 as DPP. Of the 44 DPP agricultural workers, 26 claims involved workers in the fruit industry.

> *Agricultural case: An applicator sought medical care for dermal symptoms on both sides of his neck. He had been spraying several pesticide products on apples and cherries for several days prior to developing symptoms.*
>
> *Non-agricultural case: Two carpenters were working underneath a wooden deck when it was sprayed with a pesticide from above. They inhaled the product and had dermal exposures.*

The 23 DPP non-agricultural cases worked in a variety of professions including landscaping, construction, pest control, retail, teaching, and others.

Occupational exposures are described in detail in the DOH Section under Occupational Cases of Pesticide-Related Illness.